A SUMMARY OF THE NATURAL RESOURCE DAMAGE ASSESSMENT REGULATIONS UNDER THE UNITED STATES OIL POLLUTION ACT[1]

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INTRODUCTION

In the United States, the atmosphere, oceans, estuaries, rivers, and plant and animal species are public trust resources. The primary and most recent federal statutes containing provisions establishing management agencies as trustees of natural resources are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, more commonly known as Superfund), the Oil Pollution Act (OPA), and the National Marine Sanctuaries Act (NMSA). These Acts call on the President and State governors to designate officials to serve as trustees for natural resources on behalf of the public. Trustees, then, assess and recover damages to trust resources resulting from a discharge of oil, a release of a hazardous substance, or physical injury.

Under all three statutes, natural resource damage claims are based on the restoration of public resources and have three basic components. The measure of damages is (1) the cost of restoring, rehabilitating, replacing, or acquiring the equivalent of the damaged natural resources (primary restoration); (2) the diminution in value of the natural resources pending recovery of the resource to baseline, but-for the injury (interim lost value); and (3) the reasonable cost of assessing those damages. The first component provides for restoration of injured resources to their baseline level. The second component compensates the public for reductions in the value of resource services pending recovery of the injured resources.

The natural resource damage assessment (NRDA) regulations under OPA and CERCLA treat the compensation of interim lost value somewhat differently. The CERCLA regulations promulgated by the Department of the Interior (DOI) prescribe recovering the interim loss in value and then spending dollar recoveries only on enhancing or creating natural resources and services. In its rule-making under OPA, the National Oceanic and Atmospheric Administration (NOAA) reframed the concept of damages to require compensatory restoration to offset the interim loss. Under the OPA framework, a responsible party's liability for interim loss is in terms of restoration and not in terms of dollar value lost.[2] The OPA framework has been used in several CERCLA cases and DOI is now considering adopting a more OPA-like approach to damages for the CERCLA rule.

[1] This paper expresses the views of the author and does not necessary reflect the views of NOAA.

[2] During the OPA rule-making, industry, environmental groups, and academic economists submitted extensive public comments on valuation issues, especially regarding contingent valuation. In the context of this debate, NOAA changed the compensatory liability from dollars to restoration projects.

The restoration-based damages framework has several advantages, which are summarized succinctly by Jones and Pease (1997):

> *The revised format forces the trustees to focus on the ultimate statutory goal – restoring resources – from the beginning of the assessment process, which may result in expediting restoration. Second, by recovering the costs of compensatory restoration actions rather than the value of the interim losses, the revised format ensures that enough money is collected to implement sufficient compensatory restoration to make the public whole. Finally, it deflects some of the public controversy about economic methods, in part because damages to be collected from the responsible parties are the costs of restoration…*

So, under the OPA regulations, the damage claim is the cost of returning the injured natural resources to baseline, plus the cost of compensatory restoration projects, plus the reasonable cost of assessing the damages. The steps required to assess natural resource damages using the NOAA regulations are summarized below. Special emphasis is given to the subject of determining the scale (or size) of compensatory restoration.

THE NOAA NRDA REGULATIONS

There are three phases to natural resource damage assessment under the NOAA rule: preassessment; restoration planning; and restoration implementation. The following is a description of the phases borrowing heavily from language in the NOAA regulations and the preamble to the regulations (15 CFR Part 990).

Preassessment

In the preassessment phase, the trustees determine if they have jurisdiction to conduct an assessment and, if so, whether it is appropriate to do so. After being notified of an incident, the trustees must first determine if threshold criteria that give them their authority to begin the damage assessment are met, such as applicability of OPA (there has been an "incident" that is not excluded from liability) and risks to natural resources under their trusteeship. Based on early available information, the trustees make a preliminary determination on whether natural resources or services have been injured. If injuries are expected to continue and response (or cleanup) actions are not expected to address the injuries and feasible restoration alternatives exist to address such injuries, the trustees may proceed with an assessment. If the trustees decide to proceed with an assessment, they must issue a "Notice of Intent to Conduct Restoration Planning," which is distributed to the public and the responsible party (if known). This notice indicates why it is appropriate to conduct a damage assessment based on the trustees' determinations under this part.

Once the trustees decide to conduct an assessment and issue a "Notice of Intent to Conduct Restoration Planning", they must open a publicly available administrative record to document the basis for their decisions throughout the assessment. Documents that are relied upon during the assessment are to be included in the record. Record documents

could include: relevant data, scientific studies, work plans, literature, agreements between trustees or with responsible parties, and draft and final restoration plans.

Restoration Planning

The purpose of the restoration planning phase is to evaluate potential injuries to natural resources and services and to determine the need for and scale of restoration actions. The restoration planning phase has two components: injury assessment and restoration selection.

Injury Assessment

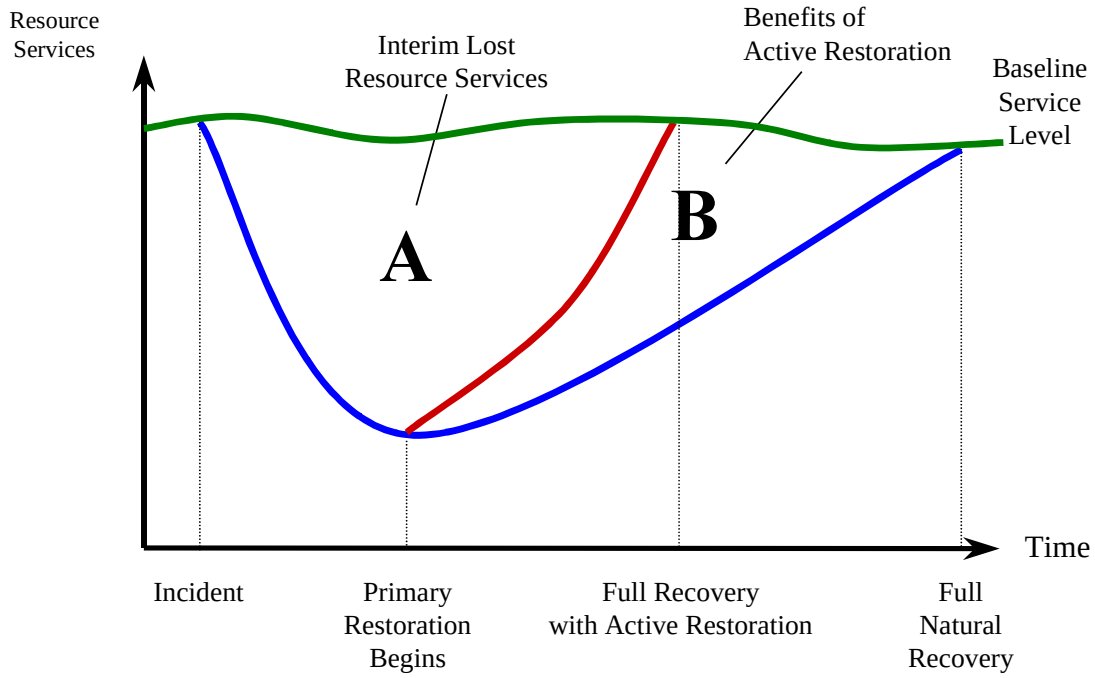
The goal of injury assessment is to determine the nature and extent of injuries to natural resources and services. Under the NOAA rule, injury is defined as an observable or measurable adverse change in a natural resource or service or as an impairment of a natural resource service. For there to be an injury pursuable under OPA, the trustees must determine that there is: exposure, a pathway, and an adverse change to a natural resource or service as a result of an actual discharge; or an adverse change to a natural resource or service as a result of response actions or a substantial threat of a discharge. Potential categories of injury include adverse changes in: survival, growth, and reproduction; behavior; community composition; ecological processes and functions; physical habitat; and public services.

Once the trustees have identified that injuries have resulted from an incident, they must quantify the degree, and spatial and temporal extent of the injuries relative to a no incident (i.e., baseline) condition. The trustees may quantify injuries in terms of a reduction in services provided by the natural resource or an amount of services lost as a result of the incident. For example, due to an oil spill in a marsh habitat, the injury could be quantified as the percent reduction of primary production in the affected area relative to baseline. As another example, fish mortality due to an oil spill could be quantified as the fish biomass lost. In any quantification of injury, the trustees must estimate the time required for natural recovery of the injury.

Restoration Selection

After the trustees have evaluated the injuries, they consider the restoration alternatives needed to make the public and the environment whole. Restoration actions include both primary and compensatory restoration, which address one or more specific injuries associated with the incident. Primary restoration refers to actions taken to return the injured natural resources and services to baseline. Changing physical, chemical, and/or biological conditions through substrate replacement or hydrologic modification are types of primary restoration actions. Natural recovery – or taking no action – must also be considered as a primary restoration option. Figure 1 shows two different paths to

Figure 1: Graphical Representation of Primary Restoration and Interim Losses



baseline services after an incident, one under active primary restoration and the other relying on natural recovery. Compensatory restoration is required to compensate for interim losses of natural resources and services pending recovery to baseline. Area A in Figure 1 represents interim losses – in the case where primary restoration is undertaken – that must be offset by compensatory action.[3] Compensatory restoration generally involves enhancing resources or providing replacement resources.

To the extent practicable, when evaluating compensatory restoration actions, the trustees must consider compensatory restoration that provides services of the same type and quality, and of comparable value as those injured. If, in the judgement of the trustees, compensatory actions of the same type and quality and comparable value cannot provide a reasonable range of alternatives, trustees should identify actions that provide natural resources and services of comparable type and quality as those provided by the injured natural resources. In order to provide restoration of the same type and quality or comparable type and quality, the restoration should generally occur in the vicinity of the injury.

After identifying the types of restoration actions that will be considered, the trustees have to scale those actions that will make the public and the environment whole. "Scaling" is usually referred to in the context of determining the size of the compensatory restoration action to ensure that the value of resource and service gains equals the value of interim

[3] Together area A and B represent interim losses where no active primary restoration is undertaken.

losses due to the incident.[4] The appropriate approach to determining compensatory restoration scale depends on the type of available replacement resources and services relative to those injured. The two major approaches are the service-to-service or resource-to-resource approach and the valuation approach. The former approach (hereafter referred to as service-to-service) is a simplification of the valuation approach and is used when the injured and replacement resources and services are of the same type, quality, and comparable value. The valuation approach applies under conditions of comparable type and quality, but not of comparable value.

1. The Service-to-Service Approach

The service-to-service approach is similar to in-kind trading between the injured and replacement resources and services. This approach requires that the lost and restored resources and services be the same type and quality, and of comparable value[5] so no explicit valuation is necessary. Under this approach, the scaling analysis simplifies to selecting the scale of a restoration action for which the present discounted quantity of replacement services equals the present discounted quantity of services lost due to the injury. Using Figure 2 as a way of explanation, the compensatory restoration scale is such that the services represented in Area B just equal the services represented in Area A.

Unsworth and Bishop (1994) were two of the first to propose a variant of the service-to-service approach for natural resource damage assessment. The habitat version of the approach, habitat equivalency analysis, has been applied in a number of damage assessment cases and has been largely accepted by the responsible party community. For an overview of habitat equivalency analysis, see NOAA (2000).

To determine the scale of compensatory restoration in practice, a number of parameters have to be identified. The services lost due to the injury are quantified by defining the time of the injury, the extent of the injury, the reduction in resources and services from baseline, and the trajectory of recovery back to baseline. The parameters that define the benefits of restoration include when the restoration project begins, the time until the project provides full services, the productivity of the project through time, and the relative productivity of the created or enhanced resources and services compared to the injured resources and services. A discount rate is applied in quantifying the lost and replacement services because the services occur in different time periods and they are not comparable otherwise.[6] Without identifying these parameters, it would not be possible to determine how much compensatory restoration is required to make the public whole.

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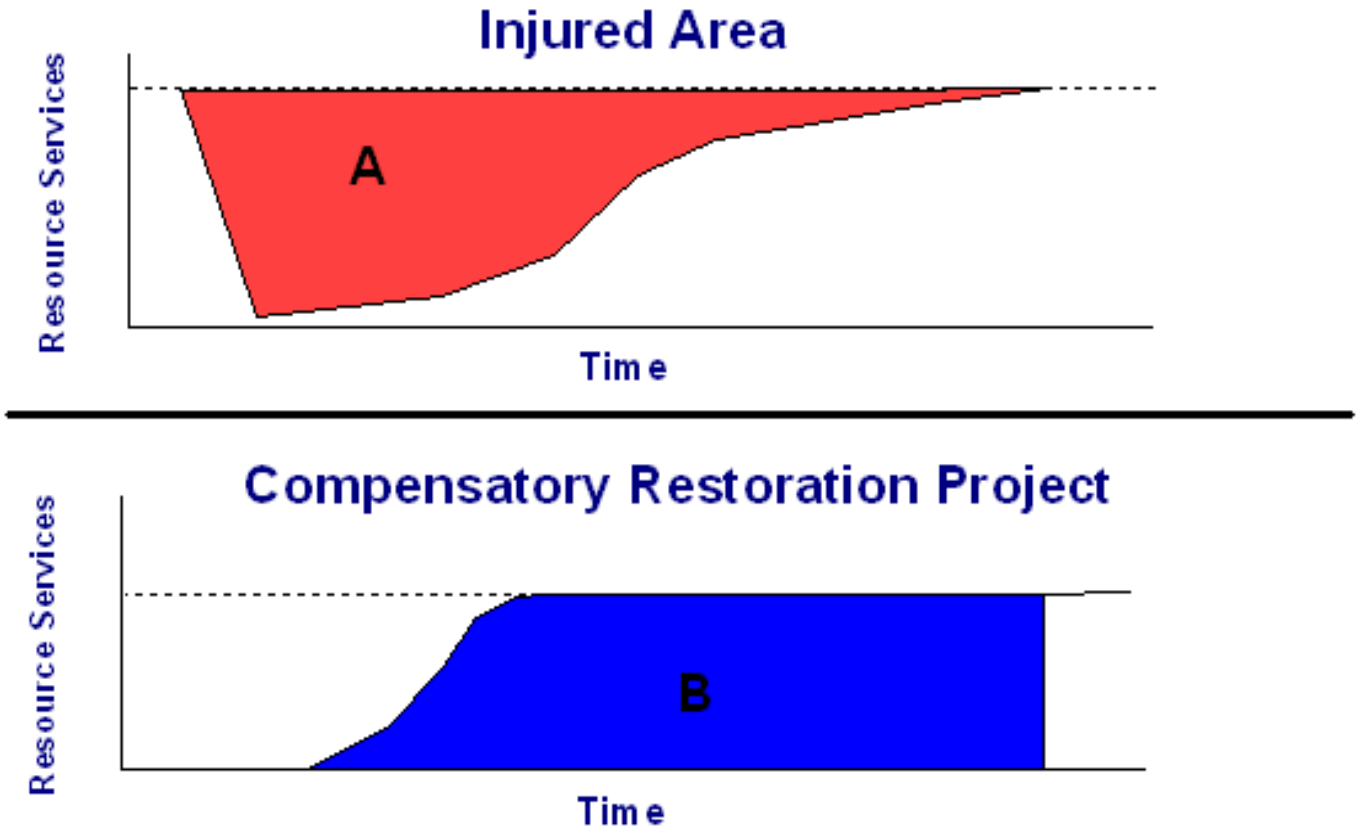
[4] Scaling for primary restoration generally applies to actions involving replacement and/or acquisition of equivalent of natural resources and services.

[5] For a discussion on how to evaluate the similarity of lost and restored services see "Comparing Ecosystem Services and Values," prepared by Dennis King for the National Oceanic and Atmospheric Administration, Damage Assessment and Restoration Program, 1997.

[6] NOAA typically applies a three percent discount rate, a rate that is in accordance with accepted economic principles (Freeman, 1993; and Lind, 1982) and recent court decisions on NRDA cases. For further information on discounting in damage assessments see NOAA (1999).

Figure 2: Graphical Depiction of Service-to-Service Restoration Scaling



2. The Valuation Approach

An alternative framework for scaling is the valuation approach. Valuation is applicable when the injured and restored resources and services are not of the same type, quality, and value. The valuation (or value-to-value) approach calculates the value of gains from the proposed restoration actions and the value of the interim losses. Procedures used to calculate values include the travel cost method, hedonic price models, conjoint analysis, and contingent valuation. Scaling an action then requires adjusting the size of restoration to ensure that the value of action gains equals the value of the interim losses. Responsible parties are liable for the cost of implementing the restoration action that would generate the equivalent value, not for the calculated interim loss in value. In some circumstances, the "value-to-cost" variant of the valuation approach may be employed. Value-to-cost is only appropriate when valuation of the lost services is practicable but valuation of the replacement natural resources and services cannot be performed within a reasonable time frame or at a reasonable cost. With this approach, the restoration is scaled by equating the cost of the restoration plan to the value (in dollar terms) of losses due to the injury. The value-to-cost approach is equivalent to the framework for compensation prescribed by the CERCLA damage assessment regulations.

As a generalization, it is often with impacts to human use services, for example recreational fishing and recreational beach use, that the trustees cannot identify

restoration projects with services of comparable value and must therefore apply the valuation scaling approach. In the assessments with more significant impacts where time and cost intensive valuation studies can be justified, the trustees can determine the amount of natural resources and services that must be provided to produce the value that was lost. Typically, the injured and replacement resources and services are measured and compared in dollars but it may be possible to implement the valuation approach with a single survey eliciting the direct resource-to-resource trade-offs between the injured natural resources and potential compensatory natural resources. When the trustees cannot justify the time or cost needed to value the compensatory restoration action – usually in assessments of smaller recreational impacts – the trustees may employ the value-to-cost valuation approach.

The Commission has expressed an interest in the use of contingent valuation (CV) under the NOAA regulations. The use of CV in damage assessments under OPA to value both the injuries and the compensatory restoration actions has been infrequent, if at all. Existing CV studies have been used under the value-to-cost approach. CV literature values of a fishing day or beach recreation day have been transferred and used to value beach use and fishing impacts due to an oil spill. The dollar value of losses has then been spent on restoration projects.

Site specific contingent valuation has been used for damage assessments pre-OPA and under CERCLA. Probably the most publicized case that used a CV is the Exxon Valdez oil spill in Alaska. In the Montrose damage assessment, which settled recently, trustees used a CV to assess the value of impacts due to DDT contamination off the coast of California. In both cases the trustees recovered the value of interim losses.

Restoration Selection – Selection of a Preferred Alternative

Once the trustees have developed a reasonable range of restoration alternatives, they must evaluate the alternatives based, at a minimum, on:

1) The cost to carry out the alternative;
2) The extent to which each alternative is expected to meet the trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensate for interim losses;
3) The likelihood of success of each alternative;
4) The extent to which each alternative will prevent future injury as a result of the incident, and avoid collateral injury as a result of implementing the alternative;
5) The extent to which each alternative benefits more than one natural resource and/or service; and
6) The effect of each alternative on public health and safety.

The trustees select a preferred restoration alternative(s) based on these factors. If the trustees conclude that two or more alternatives are equivalent, then the trustees must select the most cost-effective alternative.

After selecting a restoration alternative, the trustees must prepare a Draft Restoration Plan. The Draft Plan provides a vehicle for informing the affected and interested public of the trustees' analyses and decisions and soliciting public review. The Draft Restoration Plan describes the trustees' preassessment activities, as well as injury assessment activities and results. In the Plan the trustees evaluate restoration alternatives and identify the preferred restoration alternative(s). The public is given an opportunity for review of and comment on the Draft Plan.

The trustees must develop a Final Restoration Plan that considers comments on the Draft Restoration Plan. In response to comments, the trustees may need to modify the restoration alternatives being considered and develop and evaluate alternatives that have not been given prior consideration by the trustees, among other things. The Final Plan should indicate any revisions that were made from the Draft Plan and it should clearly specify the projects that will be implemented.

Restoration Implementation

The final phase of a damage assessment is to implement restoration. There are several steps that enable restoration implementation, a few of which are highlighted below.

Within a reasonable time after completing restoration planning, the administrative record associated with that phase should be closed. The closed record will constitute the body of information supporting the trustees' decisions through restoration planning. To document implementation of restoration a new record should be opened. This record should document, at a minimum, all restoration implementation phase decisions, actions, and expenditures, including any modifications made to the Final Restoration Plan. This record will ensure an accurate and complete accounting of all actions and costs associated with implementing the Final Restoration Plan and it will keep the public informed.

The trustees have to recover damages from the responsible parties. In the best circumstances of a cooperative assessment, the responsible parties will have entered into an enforceable agreement to either pay assessment costs and the costs associated with implementing the Final Restoration Plan, or implement the Plan according to trustee performance criteria (with trustee oversight) and reimburse trustees for assessment and oversight costs. When no such agreement exists, the trustees must present a demand in writing asking the responsible parties either to: implement the Final Restoration Plan, subject to trustee oversight, and reimburse the trustees for their assessment and oversight costs; or advance to the trustees a specified sum representing assessment costs and the trustees' estimate of all direct and indirect costs associated with developing and implementing the Final Restoration Plan.

If the responsible parties deny all liability for the claim or fail to settle the claim embodied in the demand within ninety calendar days after they are presented with the demand, trustees may elect to commence an action in court against the responsible parties

or guarantors, or to seek compensation from the Oil Spill Liability Trust Fund.[7] Judicial actions and claims must be filed within three years after the Final Restoration Plan.

CONCLUSION

Compensation for natural resource injuries under the OPA damage assessment regulations is achieved through natural resource restoration. The public is made whole by returning injured natural resources and services to baseline and by compensating for interim losses of such natural resources and services through the restoration, rehabilitation, replacement or acquisition of equivalent natural resources and services. Trustees must give priority to compensatory restoration actions that provide services of the same type and quality, and of comparable value as those lost. With these types of actions, the scale of restoration is that which provides the same quantity of replacement natural resources and services as that lost. The values of the lost and replacement services are comparable so no explicit valuation is necessary. When the replacement resources and services are not of comparable value to what was lost – usually in the case of recreation impacts – the trustees must use valuation to determine restoration scale. The scale of restoration is that which provides value equal to the value of the interim losses. In such an instance, the damage claim is still based on the cost of implementing restoration actions. Under the OPA rule, damages are only based on the value of interim losses when it is not time or cost effective to value the benefits of restoration.

[7] The Oil Spill Liability Trust Fund is a pool of money collected from oil shippers and managed by the United States Coast Guard that is used to pay OPA natural resource damage claims where there is no identified responsible party or the identified party refuses to pay a demand.

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